INHIBITIVE EFFECT OF SCHIFF BASES ON CORROSION OF MILD STEEL IN HYDROCLORIC ACID SOLUTION

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This Final Year Project report entitled **"Inhibitive Effect of Schiff Bases on Corrosion of Mild Steel in Hydrochloric Acid Solution"** was submitted by Mohd Shahril Bin Anoar, in partial fulfilment of the requirements for the Degree of Bachelor of Science (Hons.) Applied Chemistry, in the Faculty of Applied Sciences, and was approved by

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ABSTRACT

INHIBITIVE EFFECT OF SCHIFF BASES ON CORROSION OF MILD STEEL IN HYDROCLORIC ACID SOLUTION

The syntheses of Schiff base compounds using 4-hydroxybenzaldehyde and 4-chlorobenzaldehyde with N-phenyl-1,4-phenylenediamine have yielded two green semi-crystalline compounds. The characterization of the compounds is performed by infrared spectroscopy, NMR spectroscopy and elemental analysis. All the analyses have positively indicated the successful formation of the desired compounds. Weight loss measurement method have been used to study the inhibition effect of the Schiff bases 4-{(*Z*)-[(4-anilinophenyl)]imino]methyl}phenol (4-hbnp) and *N*-[(1*Z*)-(4-chlorophenyl)methylene]-*N'*-phenylbenzene-1,4-diamine (4-cbnp) on the corrosion of mild steel in 1 M HCl. Results show that both compounds possess excellent corrosion inhibition efficiency at the maximum values of 91.20 % and 95.37 %, respectively, increases with increasing concentration of the Schiff bases. The 4-hbnp reaches maximum inhibition efficiency (91.20 %) at 1 x 10^{-2} M whereas 4-cbnp reaches the highest inhibition efficiency (95.37 %) at 1 x 10^{-2} M. It is suggested that the corrosion inhibition on mild steel through adsorption is affected largely by the anchoring factor which seems to have played a more prominent role in the inhibiting property of the Schiff bases than the π-ring factor.